The Ulster Medical Journal, Volume 73, No. 2, pp. 126-128, November 2004.

Case Report

Gastrobronchial fistula – a complication of splenectomy

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Accepted 1 September 2004

Delayed perforation of the stomach following splenectomy leading to gastrobronchial fistula, although rare has been reported, although it more commonly occurs following trauma, subphrenic abscess and gastro-oesophageal surgery.[1,2] We report a case of gastrobronchial fistula following splenectomy for a ruptured splenic artery aneurysm and present a pertinent literature review.

CASE REPORT A 51-year-old male patient with previous history of acute pancreatitis was admitted with sudden onset of severe epigastric pain, hypovolaemic shock and signs of peritonitis. Haemoglobin was 8g/dl with normal indices. Other blood tests were normal. A provisional diagnosis of a perforated viscus was made and a laparotomy was performed. However this revealed a large haemoperitoneum and an infarcted spleen secondary to rupture of a splenic artery aneurysm, located at the hilum of the spleen. The aneurysm was ligated and a splenectomy performed. The patient had a difficult postoperative recovery with persistent drainage in excess of 500mls from the left subphrenic drain after day 4. A water soluble contrast meal performed on the following day demonstrated a track between the fundus and the drain. This was managed conservatively. However on day 17, the patient developed a persistent cough and a further water soluble contrast meal confirmed a fistula between the fundus and the left lower lobe segmental bronchus.

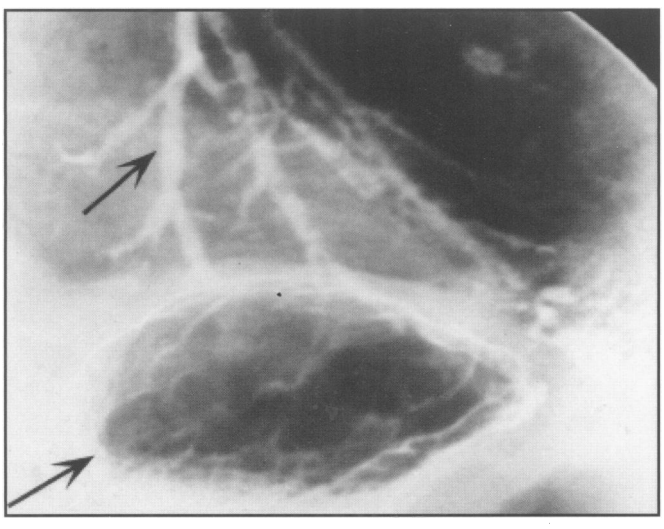

Figure Water soluble contrast meal demonstrating gastrobronchial fistula. (Top arrow pointing to bronchi; lower arrow pointing to stomach).

The patient responded well after treatment with a left-sided chest drain for a reactive effusion and a feeding jejunostomy, and was allowed home subsequently. The patient presented with haemoptysis six months later and the fistula was confirmed on an oesophagogastroduodenoscopy (OGD), water soluble contrast meal (*Fig*ure) and a computerised tomography (CT) scan. Bronchoscopy showed bloodstained secretions coming from the left lateral basal segment. While awaiting surgery, his symptoms settled. He was closely followed-up in the out-patient clinic and remained well for a year, but unfortunately the haemoptysis recurred. He underwent a laparotomy and fundectomy with excision of the fistula. The postoperative course was uncomplicated and the patient remains well at 3 year follow up.

DISCUSSION

Gastrobronchial fistula is a rare condition which can occur in the setting of benign and malignant disease. Benign causes can further be subdivided into those resulting from trauma, gastro-

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oesophageal surgery, subphrenic abscess and gastric ulcers.[3] Its occurrence following splenectomy is extremely rare.

The first descriptions of gastric fistula following splenectomy were published in 1967 by Bryk and Petigrow although the danger of injury to stomach during splenectomy was mentioned much earlier by Mayo in 1913.[4,5] At the apex of the triangular shaped gastrosplenic omentum is the danger zone, where the superior pole of the spleen is in its closest proximity to the stomach, and direct injury to stomach wall may occur while ligating short gastric vessels.[5]

Inadvertent damage to the gastric wall during splenectomy or hiatal surgery can result in an occult leak, subpbrenic abscess and ultimately fistula formation.[2] Gastro-cutaneous fistula is most commonly reported in the literature. Other factors, which predispose to gastric fistula following splenectomy, include compromised vascularity in the gastric wall (especially in elderly patients with arteriosclerosis), haematoma formation within the gastrosplenic omentum secondary to rupture of the spleen, interruption of a reflection of gastric muscle fibres within the gastrosplenic ligament, and any condition predisposing to stress ulceration.[4]

Subphrenic sepsis with transdiaphragmatic spread via lymphatics has been implicated in the aetiology of gastrobronchial fistula. Gastric ulceration following fundoplication has been attributed to gastric hypersecretion as a result of gastric distension secondary to gastric dysmotilty or inadvertent damage to vagal fibres.[6]

It is very likely that gastrobronchial fistula development in this patient was due to inadvertent abrasion or denudement of the serosal covering of the greater curvature of the stomach while ligating the short gastric vessels. This would be insufficient to have caused overt gangrene but sufficient to prevent healing of minor and otherwise insignificant injuries or serosal tears as demonstrated by Kilgore *et al.*[7] Harrison *et al* recommended that in selected cases of splenectomy where the risk of fistula development is high, i.e. very short gastric vessels, the upper aspect of the greater curvature should be inverted with several seromuscular sutures. Drainage after splenectomy has not been cited as a cause of gastric fistula, though it is believed by some to result in an increased incidence of subphrenic abscess.[4]

A diagnosis of gastrobronchial fistula should be suspected when a patient coughs gastric contents, develops recurrent lower respiratory tract infections or haemoptysis.

Investigations include OGD, bronchoscopy, barium meal and a CT chest to identify lung pathology.

In the past, patients with a gastrobronchial fistula often required major resection sometimes with a cervical oesophagostomy. The mortality with these procedures was extremely high. Nowadays a more conservative approach is possible. Control of sepsis with adequate drainage is a priority, meanwhile ensuring that the patient is adequately nourished prior to attempting definitive surgical management. The anatomy is frequently obscured due to inflammatory reaction and timing of surgery is of critical importance. Limited resection is preferred, as in the case presented, where fundectomy and excision of the fistula was performed. Should pulmonary contamination persist, debridement and decortication of chronic empyema is necessary although the majority of cases settle spontaneously.

This condition can present a difficult diagnostic dilemma and a high index of suspicion is required for prompt diagnosis. Delay in diagnosis is associated with a high morbidity, and mortality.[4] Supportive care with special attention to nutritional support and control of sepsis should be the primary aim. A successful outcome depends upon good supportive care and precise timing of definitive surgery.

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